

CLAIMS

1. A process for isolation of one or more bio-molecule(s) from a bio-molecule-containing fluid comprising the steps of:

5 a) optionally adjusting the pH of the bio-molecule-containing fluid;

 b) bringing the bio-molecule-containing fluid to a temperature of at least 40°C;

10 c) applying a volume of said bio-molecule-containing fluid having a temperature of at least 40°C to an expanded bed adsorption column comprising an adsorbent, said expanded bed column is operated with a linear flow rate of at least 1.500 cm/hour;

 d) optionally washing the column;

15 e) eluting at least one bio-molecule from the adsorbent.

2. The process according to claim 1, wherein the expanded bed column is a large-scale column comprising at least 10 l of sedimented adsorbent.

20 3. The process according to any one of claims 1 or 2, wherein the expanded bed column is a large-scale column comprising from about 50 to 100 l of sedimented adsorbent, preferably from about 100 to 1000 l of adsorbent, more preferably from about 200 to 900 l of adsorbent, most preferably from about 300 to 800 l of adsorbent.

25 4. The process according to any of the preceding claims, wherein the expanded bed column has a diameter of at least 10 cm, preferably of at least 20 cm, more preferably in the range of from about 50 cm to 200 cm, such as 100 to 150 cm.

30 5. The process according to any of the preceding claims, wherein the one or more bio-molecule(s) has a molecular weight of at least 1000 Daltons, preferably of at least 1500 Daltons, more preferably of at least 2000 Daltons.

35 6. The process according to any of the preceding claims, wherein the one or more bio-molecule(s) is/are selected from the group consisting of peptides, proteins, lipids, lipoproteins, polysaccharides, DNA, RNA, plasmids, , polynucleotides, viral particles, cell constituents, cells and combinations thereof.

7. The process according to claim 6, wherein said proteins is selected from the group consisting of lactoferrin, β -lactoglobulin, α -lactalbumin, immunoglobulins and lactoperoxidase.
- 5 8. The process according to any of the preceding claims, wherein the bio-molecule-containing fluid is selected from the group consisting of body fluids, fermentation fluids, waste water, process water, plant extracts, animal tissue extracts, animal blood plasma, animal serum, synthesis mixtures and fluids derived therefrom.
- 10 9. The process according to claim 8, wherein the body fluid is selected from the group consisting of milk, plasma, urine, egg white and fluids derived therefrom.
10. The process according to any of the preceding claims, wherein the adsorbent consists of adsorbent particles wherein 50% of the number of particles has a particle size of at 15 most 200 μm , preferably at most 175, 150, 120, 100 or 80 μm .
11. The process according to any of the preceding claims, wherein the adsorbent consists of adsorbent particles wherein 50% of the number of particles has a particle size of at most 200 μm , such as at most 150 μm , particularly at most 120 μm , more particularly at 20 most 100 μm , even more particularly at most 90 μm , even more particularly at most 80 μm , even more particularly at most 70 μm .
12. The process according to any one of preceding claims, wherein the adsorbent particle has a density of at least 1.5 g/ml.
- 25 13. The process according to any of the preceding claims, wherein the linear flow-rate is from about 1.500 to 12.000 cm/hr, preferably from about 1.800 to 10.000 cm/hr, such as about 3000 cm/hr.
- 30 14. The process according to any of the preceding claims, wherein the volume applied is from about 2-3500 l/min.
15. The process according to any of the preceding claims, wherein the volume applied per litre of adsorbent in one hour is at least 50 l, preferably at least 100 l, more preferably at 35 least 150 l/min.